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Text:
Amendment to the

Record of Decision

Summary of Remedial Alternative Selection

Geiger (C & M Oil) Site

Rantowles, South Carolina

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DECLARATION FOR THE
AMENDMENT TO THE
RECORD OF DECISION

SITE NAME AND LOCATION

Geiger (C & M Oil) Site
Rantowles, South Carolina

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Geiger (C & M Oil) Site, in Rantowles, South Carolina, chosen in accordance with CERCLA, as amended by SARA and, to the extent practicable, the National Contingency Plan. This decision is based on the administrative record file for this Site.

The State of South Carolina concurs on the selected remedy.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this ROD Amendment, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE REMEDY

This decision addresses the principal threat remaining at the Site by treating the most highly contaminated soils and ground-water. The soils will be treated in situ using solidification/stabilization, such that the Site's soils will not require any long-term management. The contaminated ground-water will be extracted, treated on-site, and disposed of either on-site or offsite. Treated ground-water will be disposed of either to an on-site stream which flows off-site or to the same steam off-site.

The major components of the selected remedy include:

- In Situ Stabilization/Solidification of contaminated soils; and

- Extraction of contaminated ground-water, on-site treatment of extracted ground-water, and discharge of treated ground-water to either an on-site or off-site stream.

DECLARATION

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site. This remedy does satisfy the statutorypreference for treatment as a principal element of the remedy. However, because waste, although treated, is being left on-site, leachate from the stabilized/solidified soil must be monitored.

Because this remedy leaves wastes on-site, a review will be conducted within five years after commencement of the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

Amendment to the Record of Decision

Summary of Remedial Alternative Selection
Geiger (C & M Oil) NPL Site
Rantowles, South Carolina

1.0 INTRODUCTION

This Amendment to the Record of Decision (1987 ROD) provides a current status of activities that have been completed since the ROD was signed for the Geiger (C & M Oil) Site on June 1, 1987, documents the Agency's decision to use Solidification/Stabilization (S/S) alone to treat the contaminated soil instead of incineration followed by S/S, and incorporates the ROD by reference (Appendix A). All other provisions of the 1987 ROD issued by EPA not inconsistent with the ROD Amendments included herein remain in full force and effect.

1.1 Site Location and Description

The Geiger Site (the Site) is located along Highway 162 in Rantowles, Charleston County, South Carolina, approximately ten (10) miles west of the city of Charleston (Figure 1). The Site is in a sparsely populated rural area. Approximately ten (10) residences are located near the Site to the east and northeast. The population in the immediate Site area is estimated at forty (40) people. Several small businesses are located within a half (0.5) mile of the Site along Highway 162. The property covers a five (5) acre area of very little topographic relief, however, the Site area is approximately one and one-half (1.5) acres in size. This affected area is triangular in shape andis bounded on two sides by ponds, and on the third side by a small rise, approximately five (5) feet higher than the Site area.

Elevations on the Site range from approximately fifteen (15) to thirty (30) feet above mean sea level.

1.2 Site History

On June 1, 1987, EPA selected a remedial alternative for the Geiger (C & M Oil) Site cleanup which included:

- recovery of contaminated ground-water with on-site treatment and discharge to an off-site stream;

- on-site thermal treatment of excavated soils to remove organic contaminants;

- Solidification/Stabilization (S/S) of thermally-treated soil to reduce mobility of metals;

- During Remedial Design S/S would be reviewed to determine if S/S alone would achieve the remedial action goals; and

- During Remedial Design, soil cleanup goals would be refined.

A Potentially Responsible Party search conducted prior to the commencement of the Remedial Investigation/Feasibility Study (RI/FS) determined that there were no viable Potentially Responsible Parties. EPA, therefore, conducted the RI/FS and since the signing of the ROD on June 1, 1987, EPA has conducted additional field investigations in order to better characterize and define the extent of the soil contamination. The results of the analysis of the additional soil samples showed relatively low levels of organic contaminants of concern (COCs) and that lead and chromium were the primary COCs. During the development of the Remedial Design for the soil, treatability testing and modeling were conducted to determine if S/S alone would achieve the remedial action goals and to refine the soil cleanup goals (Table 1). Treatability studies, including the one performed by EBASCO, conducted on soils from the Site indicatedthat S/S alone would meet the cleanup goals for the Geiger Site. The EBASCO Study can be found in the Administrative Record (See Section 3.0 "Community Relations"). The determined soil cleanup levels fall within EPA's acceptable risk range, are protective of human health and the environment, and will meet state water quality standards at the point of discharge. Based on the results of the additional soil samples, treatability studies, and because the revised remedy fundamentally changes the original remedy, the Agency has decided to amend the 1987 ROD pursuant to the National Contingency Plan (NCP), 40 C.F.R. %4F 300.435(c)(2)(ii).

1.3 Explanation of Fundamental Remedy Change

The 1987 ROD specified on-site thermal treatment of excavated soils to remove organic contaminants and S/S of the thermally treated soil to reduce mobility of the metals. The 1987 ROD also stated that during the Remedial Design, S/S would be reviewed to determine if S/S alone would achieve the remedial action goals. The 1987 ROD stated that the action levels in the ROD were preliminary goals and subject to refinement during the Remedial Design.

New information has been developed since the issuance of the 1987 ROD. Additional soil sampling has indicated that the levels of organic COCs were lower than previously described in the RI/FS reports and the area of significant contamination is smaller than originally thought. Extensive sampling has more precisely defined the location of the contamination and shown that the main soil contaminants are metals, which can be treated effectively using S/S alone. Therefore, based on the results of the site-specific treatability studies, the contaminants that are

Table 1

TREATMENT CRITERIA
CHEMICAL

INDICATOR CHEMICAL	LEACHATE CRITERIA[1](ug/l)
Benzo[a]pyrene	10
Benzo[a]anthracene	10
Benzo[b and/or k]fluoranthene	10
PCB (Arochlor 1254)	1
Benzene	5[2]
trans-1,2-Dichloroethylene	100[2]
Chromium	150
Lead	15
Toluene	1000[2]
1,2-Dichlorobenzene	600[2]
1,1-Dichloroethane	5[3]

<Footnotes>
1 Criteria is Action Level.

2 Leachate criteria equal National Primary Drinking Water Regulations latest and proposed Maximum Contaminant Levels.

3 Criteria is MCL for 1,2-Dichloroethane
</footnotes>

Leachate Extraction Method: TCLP

PHYSICAL

Property	
Unconfined Compressive Strength	50 psi

Flexible Wall Permeability 1 x 10[-5] cm/sec

currently found in the soil at the Site can be treated effectively by the process of S/S alone. In addition, based on current rates, incineration would be three to four times more costly than S/S alone. In summary, the contaminants currently at levels of concern at the Geiger (C & M Oil) Site can be treated effectively solely using S/S. 1.4 Explanation of Significant Differences

The 1987 ROD also stated that ground-water contamination would be treated on-site and that the discharge of the treated ground-water would be to an off-site stream. Since the signing of the 1987 ROD, it has been determined that because a portion of the stream is on-site, discharge of the treated ground-water may be appropriate to either an on-site or off-site part of the stream. The on-site discharge would be to the same stream as offsite discharge and would meet the same substantive standards (ARARs) as would offsite discharge. If discharge is to the off-site part of the stream, an NPDES permit would be required, but if discharge is to the part of the stream that is on-site, then the substantive requirements of the NPDES permit would be met, but the permit itself would not have to be obtained. Therefore, EPA does not consider the issue of discharge location to be a fundamental change to the 1987 ROD.

2.0 ENFORCEMENT ANALYSIS

A Potentially Responsible Party search was conducted in 1984 prior to the commencement of the RI/FS. It was determined that there were no viable Potentially Responsible Parties.

3.0 COMMUNITY RELATIONS

EPA prepared a Record of Decision (ROD) on June 1, 1987, taking into consideration the comments from the public and the results of the FS. The most environmentally sound and cost-effective remedy was then selected as a part of the ROD phase of the Superfund process. EPA selected thermal treatment of the soil to remedy the organic contamination, S/S of the soil following thermal treatment to remedy the inorganic contamination, recovery of contaminated ground-water with on-site treatment, and discharge to an off -site stream. EPA also stated that during the Remedial Design S/S would be reviewed to determine if S/S alone would achieve the remedial action goals. A public meeting was held in January 1987 in which all the alternatives were presented, although a preferred remedy was not chosen. An information repository was established and is located at the Hollywood Town Hall in Hollywood, South Carolina, near Rantowles.

This ROD Amendment was available for review and comment during the public comment period, May 25, 1993, until June 25, 1993, and will become part of the Administrative Record File, as required by CERCLA 117, 42 U.S.C. 9617, and the NCP, 40 C.F.R. 300.825(a)(2). No comments were received during the public comment period and no requests were received for an extension of the comment period or for a public meeting.

4.0 CURRENT SITE STATUS

4.1 Hydrogeology

Ground-water Contaminants

The current areal and vertical extent of ground-water contamination were delineated from several sources of information. The original source of information was from the Remedial Investigation (RI). Since that time, additional monitoring wells were installed in 1988. There are currently twenty-seven (27) permanent monitoring wells on-site and off-site, located in clusters of two to three wells, which range in depth from approximately ten (10) to forty-five (45) feet below land surface. After the new monitoring wells were installed, these new wells and the wells installed during the RI were sampled. There also have been several additional sampling events since 1988; the last sampling event occurred during May 1992 through June 1992. During the 1992 sampling event, the permanent monitoring wells were sampled along with eleven (11) additional temporary monitoring wells that were installed further downgradient than the permanent wells, and at various locations onsite and upgradient.

Sampling and analysis of the Monitoring wells indicate the following:

Cadmium was detected above Maximum Contaminant Levels (MCLs) in well MW-6s in the earlier sampling events. It was not detected in the 1992 sampling event in any of the wells. Two metals which were consistently detected above MCLs in all the sampling events were the following:

Contaminant	Well No.	Maximum Level Detected	MCLs Federal/State)
chromium	MW-2s	7.8 mg/L	0.100 mg/L
lead	MW-6s	3.4 mg/L	0.015 mg/L

No contaminants of concern were detected during the last sampling event in 1992 in samples collected from the additional permanent monitoring wells located downgradient and north to northwest of the Site.

During the RI, organic contaminants, some of which exceeded MCLs, were detected primarily in one monitoring well (MW-4s). However, since the signing of the 1987 ROD, the results from five additional post-ROD sampling events have not shown any organics in this well. Only a few organics have been detected since that time, sporadically in the wells installed during the RI, but no organics were detected in the newer wells added in 1988. The types of organics and the levels detected -- mostly low and below MCLs -- varied with each sampling event and varied in each well.

Based on the sampling data, ground-water contamination has been found primarily in the water-table wells located in the surficial aquifer. The boundary of the contamination plume is defined by those wells in which no contaminants were detected or were not above background. The zone is bounded on the northwest side by wells MW-08 to MW-11, on the west side by well MW-12, on the southwest side by well MW-03, and on the south side by temporary well GT3BG2.

4.2 On-Site Soils

Since the 1987 ROD was signed, EPA has conducted additional field investigations in order to better characterize and define the extent of the soil contamination. The last sampling event occurred in May 1992. The inorganics chromium and lead were detected in most of the samples from the Site area. Significantly high levels of the inorganics were detected, especially at and near the location of the old lagoons. The maximum chromium level detected was 6,275 mg/kg and the maximum lead level detected was 730 mg/kg. A few organics, primarily toluene and PCB, were detected in some of the samples collected from the Site area near the old lagoon. The maximum levels, respectively, of toluene and PCB detected in the soil samples were 144 mg/kg and 10 mg/kg. Most soil sample levels of toluene and PCB, however, were below 10 mg/kg and 1 mg/kg, respectively. The results of the various field investigations show the area needing treatment for soil contamination to be the triangular area described in Section 1.1 of this Amendment. This triangular area will be treated to a depth of ten (10) feet. Analytical results from the RI are in the Remedial Investigation Report. The analytical results from the additional field investigations are in the In-Situ Solidification/Stabilization of Contaminated Soil Remedial Design Report.

5.0 SUMMARY OF SITE RISKS

5.1 Public Health and Environmental Objectives

At the time the 1987 ROD was signed, there was no current public health threat to off-site residents and no significant risk to on-site workers under the reasonable case scenario via dermal contact. Health risks associated with exposure by inhalation were considered negligible. Nearby wells, which were located upgradient, had not been affected by Site contaminants. There are no nearby private wells located downgradient. Under the future use scenario where the Site is developed and private wells are installed, it was determined that soil remediation would be necessary to prevent further leaching ofcontaminants into the ground-water as well as recovery of the contaminated ground-water in order to meet the remedial action objectives.

The waters of the surficial aquifer have been classified as Class GB ground-water. Class GB aquifers are considered potential sources of drinking water and must be remediated to levels that do not adversely affect human health and the environment. Sampling data indicates that several contaminants in the groundwater plume exceed drinking water standards (chromium and lead). At the present time, all residents have access to municipal water. In addition to being classified as a Class GB aquifer, discharge of the untreated ground-water into the on-site ponds, which flow into an unnamed creek and thence into the Wallace River, may potentially have an environmental impact on plant and animal species in the various surface water bodies.

6.0 ALTERNATIVES CONSIDERED FOR SOIL REMEDIATION IN JUNE 1987 R0D

Soil remediation alternatives considered for the Geiger (C & M Oil) Site are listed in Table 2 along with the reasons certain alternatives were eliminated. For an in-depth analysis of the other soil alternatives

considered, see pages 23 - 32 of the 1987 ROD.

6.1 Alternative Previously Selected For Soil

The selected remedy for soil, as specified in the 1987 ROD, was excavation, on-site thermal destruction, and Stabilization/Solidification (S/S). The selection of this alternative is now being reevaluated because new information has been developed about the nature and extent of the contamination at the Site and changes in the relative costs of various remedies since the 1987 ROD.

6.2 Description of Alternative Currently Being Considered for Soil Remediation Alternative 1 In-situ Stabilization/Solidification

Alternative 2 Excavation, on-site thermal destruction
Stabilization/Solidification

6.2.1 Alternative 1 - In-Situ Stabilization/Solidification

Alternative 1 consists of the treatment of affected soil in place by in-situ stabilization. This alternative involves the stabilization of soil to a depth of ten feet below land surface. During the performance of the Remedial Design, it was determined that in-situ stabilization would be more effective at the Site than ex-situ stabilization since the ground-water was very shallow, and because of dust and air emissions from excavation of the contaminated soil.

In-situ stabilization includes the use of deep soil mixing equipment that delivers stabilization reagents to the affected soils during mixing operations. The process involves auguring into the affected soils to the desired depth using hollow-stem augers. The hollow-stem augers overlap and can vary from two to five augers per assembly. A shallow soil mixing system also is available and uses a single, wide diameter auger rather than an assembly of overlapping augers. Treatment agents are introduced into the disturbed matrix through jets constructed in the auger. The reagents can be introduced in either a liquid or slurry form. A system such as this could consist of the following typical unit operations:

- Shallow Soil Mixing Assembly

- Reagent Containers and Feed Systems

Treatment duration will vary by depth and by the amount of mixing required to ensure adequate S/S. The treatment duration estimated for this Site is less than a year. Testing of the solidified treatment zones also will be necessary to ensure that performance requirements are being met. Low levels of organics possibly may volatilize during the treatment process, therefore, air monitoring equipment will be used. Treatability studies have been completedusing Site soils and these studies showed that this alternative will effectively meet the remediation goals for both the metals and the organics.

For a detailed description of ARARs, see Section 6.3(2) and 8.2 of this Amendment. The S/S alone treatment option is currently estimated at $3.2

million (1992).

6.2.2 Alternative 2 - Excavation, On-Site Thermal Destruction, Stabilization/Solidification

This alternative would consist of excavation of all contaminated soils on the Site (probably requiring a dewatering step), thermal destruction of the organic contaminants in the soil in an on-site mobile thermal destruction unit, treatment of the inorganic contaminants in the soil with S/S reagents, and then backfilling the excavated areas with the treated soil.

At the time the 1987 ROD was signed, the estimated cost of the soil remedy selected in the ROD was approximately $5.2 million. At this time, using the current estimated volume, the remedy selected in the 1987 ROD could cost approximately $10.0 to $12.0 million. The estimated time period for this alternative is greater than a year.

This alternative would destroy the organic contaminants and stabilize the metals so that they would not migrate. For an in-depth analysis of this alternative, including ARARs, see pages 30 - 31 of the 1987 ROD.

6.3 Comparative Analysis

This analysis will compare the alternatives, A-1 and A-2, for the nine evaluation criteria detailed in the National Contingency Plan (NCP). For a more detailed analysis of the remedy selected in the 1987 ROD, which has S/S as a component, see pages 30, 31, and 33 - 36 of the 1987 ROD.

1. Overall protection of human health and the environment - Both of the alternatives accomplish this criterion. Both of the alternatives are within Agency guidelines and would provide overall protection by reducing or controlling the threat by remediating the contaminated soil. Both alternatives would meet the remediation goals and be long-term protective of human health and the environment: A-1 by chemically and physically binding the organic and inorganic contaminants using S/S alone, and A-2 using thermal treatment to destroy the organic contaminants and S/S to bind the inorganic contaminants. The additional protection offered by in-situ S/S is further enhanced by the short-term protectiveness gained from treatment without excavation of waste materials, which would not have the air emission concerns associated with thermal treatment of soils.

2. Compliance with ARARs - Alternatives A-1 and A-2 would meet ARARs for soil and ground-water. No waiver from ARARs would be necessary to implement either cleanup alternative.

ARARs for A-1 Soil Treatment

Currently, 40 C.F.R. Parts 60 and 61, 42 U.S.C. 7401 et. seq, which include the National Emissions Standards for Hazardous Air Pollutants (NESHAPs), promulgated pursuant to the Clean Air Act 101 et. seq, as amended, and the South Carolina Air Pollution Control Regulations and Standards, SC Reg. 61-62, promulgated pursuant to the Pollution Control Act, SC Code of Laws, 1976, as amended, do not apply to air emissions caused by mixing the soil in -situ with stabilization reagents. SC Reg. 61-62 establishes limits for

emissions of hazardous air pollutants and particulate matter, and establishes acceptable ambient air quality standards within South Carolina. Because the selected treatment does not include thermal treatment of the soil as proposed by the 1987 ROD, no ARARs apply to air emissions caused by stabilizing the soil.

40 C.F.R. Part 261, Subpart C, Characteristics of Hazardous Waste, promulgated pursuant to the Resource Conservation and Recovery Act (RCRA) 3001, 42 U.S.C. 6921, and SC Reg. 61-79.261, Subpart C, defines those solid wastes which are subject to regulations as hazardous waste. Because the wastes were not hazardous wastes, currently no RCRA regulations apply, including Land Disposal Regulations. However, confirmation sampling will be done to ensure that the Toxicity Characteristic Leaching Procedure (TCLP) requirements are not exceeded and thus no RCRA regulated hazardous wastes have been generated.

ARARs for Ground-Water

If the alternative to discharge treated ground-water on-site is chosen, the substantive requirements of the NPDES program will be met although no permit is required for on-site discharge of treated ground-water. If the off-site alternative to discharge ground-water is chosen, the substantive and administrative requirements of the NPDES program will be met and a permit will be obtained.

For an in-depth analysis of the application of ARARs to the original remedy which included S/S, see pages 35 - 36 of the 1987 ROD.

3. Long-term effectiveness and performance - Both of the alternatives would provide a permanent remedy for both organic and inorganic contaminants. Therefore, either alternative would meet this criterion and reduce the risk associated with soil contamination at this Site.

4. Reduction of toxicity, mobility, and volume - Both alternatives would reduce the toxicity and mobility of soil contamination. Alternative A-1 would accomplish this by binding, both chemically and physically, the organic and inorganic contaminants. Alternative A-2 would destroy the organic contaminants and chemically and physically bind the inorganic contaminants. Both alternatives would prevent the threat of further degradation of the ground-water.

5. Short-term effectiveness - Alternative A-1 would provide shortterm effectiveness. Emissions would be minimal since the remedy is insitu and does not require excavation of the waste materials. Alternative A-2, however, would not be short-term effective because there would be air emissions from the thermal treatment unit and dust and volatilization of contaminants as a result of excavation of the soil. In addition, A-1 would be completed in less time than A-2 since A-2 would require additional time to excavate (including dewatering steps), return the soil following treatment, and thermally treat it.

6. Implementability - Both alternatives are technically feasible. The reliability of in-situ stabilization equipment has been demonstrated at several sites. Implementation of the treatment process for Alternative A-1

has some level of technical problems that could lead to schedule delays, especially since the treatment reagents must be equally distributed throughout each treatment area. The primary uncertainty associated with in-situ stabilization is the variability of treatment throughout the treatment zone. This concern will be addressed by requiring sufficient overlap between treatment areas and by sampling of the treated zone. This alternative will not require permitting or coordinating with other offices or agencies. Special drilling equipment capable of injecting treatment agents during drilling is required for insitu stabilization, however, several commercial vendors offer the process. Alternative A-2 is a proven technology. Wastes would be fed into the thermal unit at a rate providing sufficient retention time for complete combustion of the organic contaminants. Air monitoring and analysis equipment would be needed to monitor scrubber effluent, solids residue, combustion gases, system pressure and temperature, and air flow rates.

7. Cost - Both of the alternatives are protective of human health and the environment. The costs associated with Alternative A-1 are less than the costs associated with Alternative A-2 and for this reason, Alternative A1 is the most cost effective remedy.

8. State Acceptance - The State of South Carolina concurs with the S/S alone treatment alternative.

9. Community Acceptance - At the time the 1987 ROD was signed, many members of the community were quite vocal in criticizing the thermal treatment portion of the remedy. This information was obtained from past articles in the newspaper and from conversations with local residents in the last year or two. They cited a history of exposure to contaminants from the incinerator that was previously located at the Site. There were no official comments submitted during the public comment period opposing the alternative selected in the 1987 ROD, however, during the public comment period EPA had not indicated a preference for a particular remedy in the proposed plan. Conversations with nearby residents in the recent past about Alternative A-1 indicated that the residents were not opposed to S/S only of the contaminated soil.

7.0 SELECTED REMEDY

Based upon consideration of the requirements of CERCLA, the detailed analysis of both alternatives, and public comments, EPA has determined that Alternative A-1 is the most appropriate remedy for the contaminated soil at the Geiger (C & M Oil) Site in Rantowles, South Carolina.

The selected remedy consists of the treatment of affected soil in place by in-situ stabilization. The area to be treated is the triangular area described in Section 1.1 of this Amendment. This area is bounded on two sides by ponds and on the third side by a small rise, approximately 5 feet higher than the Site area. Testing of the solidified treatment zones also will be necessary to ensure that performance requirements are being met. Treatability studies have been completed using Site soils that showed this alternative effectively will meet the remediation goals for both the metals and the organics.

The selected remedy consists of the treatment of affected soil in place by in-situ stabilization. This alternative includes the use of deep soil mixing equipment that delivers stabilization reagents to the affected soils during mixing operations. The process involves auguring into the affected soils to the desired depth using hollow-stem augers. The hollow-stem augers overlap and can vary from two to five augers per assembly. A shallow soil mixing system also is available and uses a single, wide diameter auger rather than an assembly of overlapping augers. Treatment reagents are introduced into the disturbed matrix through jets constructed in the auger. The reagents can be introduced in either a liquid or slurry form.

8.0 STATUTORY REQUIREMENTS

The U.S. EPA and SCDHEC believe that this remedy will satisfy the statutory requirements of CERCLA 121, 42 U.S.C. 9621, and NCP 300.430, 40 C.F.R. 300.430, of providing protection of human health and the environment, attaining Applicable or Relevant and Appropriate Requirements (ARARs) of other environmental statutes, will be cost-effective, and will utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Sections 8.1 through 8.5 below analyze the statutory requirements for this Site.

8.1 Protection of Human Health and the Environment

The selected remedy provides protection of the public health and environment through Solidification/Stabilization treatment of contaminated soil. For a detailed analysis of this requirement, see Section 6.3(1) of this Amendment.

8.2 Attainment of the Applicable or Relevant and Appropriate Requirements (ARARs)

Remedial actions performed under CERCLA must comply with all ARARs. All alternatives considered for the Geiger Site were evaluated on thebasis of the degree to which they complied with these requirements. The selected remedy will comply with all ARARs. Although the selected treatment does not include thermal treatment of the soil as proposed by the 1987 ROD, the selected remedy does envision possible volatization of the low concentration organics when the soil is mixed with the stabilization reagents. Thus, confirmation sampling will be done to ensure that the air quality remains good and that no ARARs become applicable to the air aspect of the remedy. In addition, because the wastes were not hazardous wastes, no Resource Conservation and Recovery Act (RCRA) regulations apply. However, confirmation sampling will be done to ensure that the TCLP requirements are not exceeded and thus no RCRA regulated hazardous wastes have been generated.

Treated ground-water may be discharged on-site or off-site. If the on-site alternative is chosen, no NPDES permit is required, but the substantive requirements of the NPDES permit will continue to be in effect and these requirements will be met. The reason for the ground-water discharge location contingency is because EPA will not need access to discharge treated ground-water on-site. In addition, there is no difference in discharging the treated ground-water on-site as opposed to off-site because it is the same stream.

8.3 Cost Effectiveness

The remedy selected in the 1987 ROD now could cost $10.0 to $12 million. The Stabilization/Solidification alone treatment option is currently estimated at $3.2 million (1992), and therefore, is the more cost effective remedy compared to the original remedy.

8.4 Utilization of Permanent Solutions and Alternative Treatment Technology or Resource Recovery Technologies to the Maximum Extent Practicable

U.S. EPA believes the selected remedy is the most appropriatecleanup solution for the contaminated soils at the Geiger Site and provides the best balance among the evaluation criteria for the remedial alternatives evaluated. This remedy provides effective protection in both the short and longterm to potential human and environmental receptors, is readily implementable, and is cost effective.

Stabilization/Solidification of the contaminated soil represents a permanent solution (through treatment) which will effectively reduce and/or eliminate mobility of hazardous wastes and hazardous substances into the environment.

8.5 Preference for Treatment as a Principal Element

Treatment of the contaminants will effectively prevent them from posing a threat by leaching to ground-water, and therefore, satisfies the preference for treatment.

APPENDIX A

RECORD OF DECISION, JUNE 1987